

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/039968 A1**

(51) International Patent Classification<sup>7</sup>: **B63B 35/42**

(21) International Application Number:  
PCT/NO2004/000327

(22) International Filing Date: 27 October 2004 (27.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20034814 28 October 2003 (28.10.2003) NO

(71) Applicant (for all designated States except US): **DELTA LIFTER TECHNOLOGIES AS** [NO/NO]; c/o Marine Technology Corporation (Norge) AS, Fekjan 7C, N-1394 Nesbru (NO).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **NATVIG, Birger, J.** [NO/NO]; Engfaret 6D, N-1344 Haslum (NO).

(74) Agent: **OSLO PATENTKONTOR AS**; P.O. Box 7007M, N-0306 OSLO (NO).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

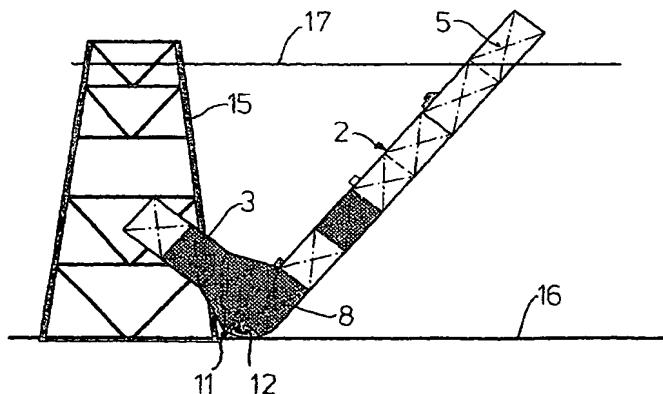
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,

[Continued on next page]

(54) Title: A METHOD AND VESSEL FOR REMOVING OFFSHORE STRUCTURES



(57) Abstract: A method for removing or installing an offshore jacket structure (15) in a body of water utilises a vessel (1) having a generally planar main buoyancy section (2) having in plan view substantially the outline of a delta with an extension (4, 5) at the apex and auxiliary buoyancy sections (3, 8) extending transversely of the main buoyancy section at the ends of the base of the delta. The bottom parts (8) of the auxiliary buoyancy sections (3) are provided with a rounded outer surface (11) and contain heavy fixed ballast (12). By suitable ballasting the vessel (1) may be rotated so that the main section (2) forms an angle less than 90 degrees with the water surface (17) as it is brought close to the jacket structure with the auxiliary sections (3) straddling the jacket structure. In this position the vessel is rotated towards the jacket structure while its rounded bottom portion (11) rolls on the seabed (16), thus permitting good control of the movements of the vessel in a critical phase of the removal process. Once the jacket structure (15) has been connected securely to the vessel (1), the vessel is rotated back to the initial position while still in contact with the seabed by de-ballasting the auxiliary sections (3) before it is brought to the surface. The vessel is made from stiffened flat steel plates and can therefore be efficiently manufactured in commonly equipped shipyards.



EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*